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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/260,903	03/02/1999	TOSHIFUMI SATO	P/1905-80	7057

7590

05/23/2002

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EXAMINER

GANTT, ALAN T

ART UNIT

PAPER NUMBER

2684

DATE MAILED: 05/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

DB

Office Action Summary	Application No. 09/260,903	Applicant(s) SATO, TOSHIFUMI	
	Examiner Alan T. Gantt	Art Unit 2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 02 March 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 12, and 14, are rejected under 35 U.S.C. 102(b) as being anticipated by Keskitalo et al.

Regarding claims 1, 2, 8-10, 12 and 14; Keskitalo discloses a CDMA cellular radio system and method for transmitting pilot channels in a cellular radio network comprising at least one base station communicating with mobile terminals. The base stations transmit a data signal in the down link direction. The base stations each transmit at least one pilot channel in with a predetermined radiation pattern, which determines the cell coverage area, and a second pilot channel on transmission directions changing in time (Abstract). Keskitalo utilizes adaptive antenna beams and uses the pilot signals both as a phase reference and as a base station detector. Thus, the first pilot channel that is a data unmodulated signal transmitted with a specific spreading code that is constant in time, uses an omni-directional radiation pattern, and is used in power measurements for detecting the need for a handover (page 8, lines 11-21). The second pilot signal is transmitted using a relatively narrow antenna beam and sweeps the cell area like a lighthouse and this pilot can be transmitted with several sweeping antenna beams, which are phased in such a way that they do not overlap. The base station informs [notification means] the mobile terminal on a control channel concerning the time when the pilot channel sweeps the

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area. The base station transmits the second pilot signals to the mobile terminals with radiation patterns that correspond to the traffic channels (data and control channels), which in transmission directions, changes in time (page 18 , line 11 to page 19, line 32). Thus, these second pilot channels are known in advance as coming from the base station and these pilot channels correspond to the traffic (data channels) with in the base station to mobile terminal coupling there exists at least one (M) traffic channels and two (N) pilot channels.

Regarding claim 3, the second pilot is used for coherent detection of the data channel to which the pilot channels corresponds.

Regarding claim 4, there is a control channel that communicates various information to the mobile from the base station.

Regarding claims 5 and 6, the base station informs the mobile terminal on a control channel concerning the time when the pilot channel sweeps the area.

Regarding claim 7, since the second pilot of Keskitalo is sent over the narrow antenna beams only when traffic information is sent between base and mobile, if there is no correspondence between the two then there is no need for this second pilot signal to keep the identities straight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 11, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keskitalo et al.

Regarding claims 11, 13, and 15, all that applies for claim 1 above applies for the instant claim. Additionally, the cellular system of Keskitalo is a CDMA scheme and includes a reference transmission method where the base station is used for the pilot signal and data signal transmission. However, Keskitalo does not explicitly state that transmitting / receiving information by using each of M data channels by selecting an optimal pattern from the L types of directivity pattern in accordance with a position of the communicating mobile terminal. Also, Keskitalo does not explicitly speak in the same terms regarding the transmitting of a reference signal by using each of N pilot channels by selecting one of the pilot channels for each directivity pattern being used on a data channel. Nor does Keskitalo speak of notification means to notify a pilot channel that is being used for transmission with the same directivity pattern as used by the data channel.

However, the above limitations are either obvious or implied by the Keskitalo reference. It has already been stated that Keskitalo provides for the two types of pilot signals, where one involves being transmitted as a reference signal for the data transmission direction that changes in time. One of the main points of Keskitalo is the use of adaptive antenna beams and that the transmitter unit may phase the signal to be transmitted in such a way (optimal pattern) that the angle of greatest gain of the antenna beams point in the desired direction (always towards the desired mobile terminal) as the receiver knows at all time the direction from which the best signal components from the mobile terminal are received. The use of adaptive antennas at the base station insures that there will be numerous or L types of directivity patterns. Since there is a

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notification process with Keskitalo, at the time of the applicant's invention it would be obvious that the particulars of the pilot channel would be included in the control channel so that the mobile would seek out the appropriate pilot signal spread codes. Thus, there would exist at the base station means for correlating the appropriate pilot signal with the appropriate antenna pattern.


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lavean discloses an orthogonal code synchronization system and method for spread spectrum CDMA communications.

Any inquiry concerning this communication from the examiner should be addressed to Alan Gantt at telephone number (703) 305-0077. The examiner can normally be reached between 9:30 AM and 6 PM within the Eastern Time Zone. The group FAX number is (703) 308-6306.

Any inquiry of a general nature or relating to this application should be directed to the group receptionist at telephone number (703) 305-4700.



Alan T. Gantt

May 14, 2001



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